



PHASE II ENVIRONMENTAL SITE ASSESSMENT

FORMER MIDDLETOWN
POLICE STATION
62-66 CHURCH STREET
MIDDLETOWN,
CONNECTICUT

JULY 2000

Prepared for:

CITY OF MIDDLETOWN
MIDDLETOWN, CONNECTICUT

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EXECUTIVE SUMMARY

Marin Environmental, Inc. (Marin) has completed a Phase II Environmental Site Assessment

(ESA) of the Former Middletown Police Station located at 62-66 Church Street within the City

of Middletown, Connecticut. The site consists of approximately .73 acres of landscaped areas,

asphalt paved parking areas, and a two-story concrete block and brick building. The study site is

currently vacated. The site has been used, historically, as a technical school from approximately

1925 to 1963, and police station from approximately 1963 to 1999. Prior to the construction of

the technical school, the site was used for residential purposes. The eastern section of the study

site, identified as 62 Church Street, has been used, historically, for residential purposes from

approximately 1884 to 1970, and as a parking area from approximately 1970 to the present.

According to a Phase I Environmental Site Assessment conducted by Marin Environmental, Inc.

in July 2000, Marin recommended that the following areas of concern be investigated:

• The soil and ground water adjacent to the gasoline UST should be evaluated to determine if a

release has occurred or if remnants from the historical release from the previous UST remain.

Suspect floor drains located throughout the northern section of the study site building should

be investigated to determine points of discharge.

• The material located in the target butt area of the firing range should be sampled and

analyzed to determine its proper waste disposal classification.

On July 11, 2000, a total of four soil borings were advanced adjacent to the gasoline UST located

adjacent to the northwestern section of the study site building. Two temporary piezometers were

installed to collect ground water samples adjacent to the gasoline UST. Three soil samples were

collected and analyzed based on PID readings and proximity to the gasoline UST. Soil

laboratory analytical results indicate that no compounds were detected in soil samples collected.

Former Middletown Police Station 62-66 Church Street Phase II Environmental Site Assessment On July 11, 2000, a total of two ground water samples were collected from the two temporary piezometers installed adjacent to the gasoline UST. Ground water laboratory analytical results indicated that Methyl tert-butyl ether (MTBE) was detected in the ground water samples at concentrations of 974 ug/L and 4 ug/L. Neither of these detections exceed the Residential Volatilization Criteria for MTBE.

On July 11, 2000, Marin personnel collected a total of two samples from the target butt area of the firing range located within the northern section of the study site building. Analytical results indicated that elevated levels of both TCLP lead and total lead were detected in the samples collected. The concentrations of both TCLP and total lead from both samples collected exceeded their respective Residential Direct Exposure Criteria, GB Pollutant Mobility Criteria, and the Hazardous Waste Criteria.

On July 12, 2000, Marin personnel oversaw a floor drain investigation of four suspect floor drains conducted by the City of Middletown Sewer and Water Department at the study site building. The investigation concluded that the suspect floor drains investigated discharged to the sanitary sewer system on Church Street adjacent to the south of the study site.

Based on the findings of the Phase II ESA, Marin recommends that the existing gasoline UST be removed by a licensed contractor. Tank removal specifications should be developed to ensure proper removal of the tank and for bidding purposes. During removal, the soil conditions should be evaluated by a qualified consultant and post-closure sampling should be conducted per CTDEP protocols. It is recommended that a qualified consultant occasionally inspect the site for potential USTs during site demolition and sub-surface activities. The material located in the target butt area of the firing range must be disposed of as hazardous waste prior to site demolition activities. In addition, this area should also be decontaminated. Removal and decontamination specifications for this activity should be developed to ensure proper procedures are used and for bidding purposes. Various containers of kerosene, hydraulic oil, refrigeration oil, pump oil, Arcton 22 (chlorofluoromethane), and suspect mercury containing light bulbs observed throughout the study site building should be removed from the site by a licensed contractor prior to site demolition activities according to Local and State regulations.

Former Middletown Police Station 62-66 Church Street Marin Environmental ,Inc. Reference No. middletown/A0-0220/PhaseIIMPD.doc

1.0 INTRODUCTION

Marin Environmental, Inc. (Marin) has completed a Phase II Environmental Site Assessment (ESA) of the Former Middletown Police Station located on 62-66 Church Street within the City of Middletown, Connecticut.

Based on the presence of potential release areas, Marin recommended that the soil and ground water adjacent to the gasoline UST be investigated to assess soil and ground water quality in the area of the UST. Currently this area contains an existing gasoline UST. Suspect floor drains observed within the northern and central section of the study site building were recommended to be investigated to confirm discharge points. Lastly, the material (gravel, sand and slag) located in the target butt area of the firing range should be analyzed for lead content for waste disposal purposes.

The Project Background, including site information, site history, and previous environmental work, is discussed in Section 2.0. Physical conditions of the site and surrounding area, including geology and hydrogeology, are discussed in Section 3.0. Details and results of the various activities performed during the Marin Phase II ESA are discussed in Section 4.0. Section 5.0 provides results of the investigation and Section 6.0 presents a summary of findings and recommendations.

2.0 PROJECT BACKGROUND

This section provides a current description of the site, a brief summary of site historical use, and an outline of environmental work performed prior to Marin's Phase II ESA.

2.1 Site Location and Description

The Former Middletown Police Station is located at 62-66 Church Street within the City of Middletown, Connecticut. The site location is illustrated in Figure 1. The site is located in a mixed Commercial/Industrial area of Middletown, Connecticut, and site is bounded to the north, east, and west by residential property and to the south by Church Street. The site comprises an area of approximately .73 acres, and is occupied by asphalt paved parking areas, landscaped areas and a two-story brick and concrete block building. According to historic Sanborn Fire Insurance Maps and Middletown City Street Directories, the study site building has been used, historically, as a technical school and police station. According to the 1950 Sanborn Map, the northern section of the study site building was utilized as an automobile repair area, presumably, in conjunction with the technical school. According to a property map of 66 Church Street dated August 1923, the study site contained a residential dwelling on the southwestern section of the site. The eastern section of the property, identified as 62 Church Street, has been used, historically, for residential purposes from approximately 1884 to 1970, and as a parking area from approximately 1970 to present. The current site plan is presented as Figure 2.

Ground water in the site area is classified as GB by the CTDEP. Class GB ground waters designate highly urbanized areas or areas of intense industrial activity and where public water supply is available. This water may not be suitable for direct human consumption due to waste discharges, spills or leaks of chemicals or land use impacts. The CTDEP's goal is to prevent further degradation by preventing any additional discharges which would cause irreversible contamination.

2.2 Previous Investigations

A Phase I Environmental Site Assessment (Phase I ESA) was completed at the site by Marin Environmental, Inc. in July 2000. The Phase I ESA consisted primarily of a site inspection, review of historical site usage, and a regulatory records review. Information presented in the Phase I ESA indicated that a release to the environment may have occurred due to historical activities. Specifically, a gasoline leaking underground storage tank (UST) was located adjacent to the northwestern section of the study site building, a number of suspect floor drains were located in areas formerly used for automotive repair training, and an area previously used as a firing range is located within the northern section of the study site building.

Based on the presence of potential release areas, Marin recommended that a Phase II ESA be conducted to determine if an actual release occurred to the environment. Marin recommended that the soil and ground water adjacent to the gasoline UST be investigated to assess soil and ground water quality in the area of the UST. Currently this area contains an existing UST apparently used to fuel police vehicles. In addition, due to the apparent historical use of the northern section of the study site building as a automobile repair area/garage, the suspect floor drains observed within the northern and central section of the study site building be investigated to confirm discharge points. Lastly, the material (gravel, sand and slag) located in the target butt area of the firing range located within the northern section of the study site building be analyzed for lead content for waste disposal purposes.

3.0 PHYSICAL CHARACTERISTICS OF THE SITE

> 3.1 Site Geology

The United States Geological Survey (USGS) Surficial Materials Map of Connecticut

(1992) shows the site area to be underlain by areas of thick till. This area is composed of

till greater than 10-15 feet in thickness including drumlins in which till thickness

commonly exceeds 100 feet (maximum recorded thickness is about 200 feet).

Soil borings installed during the Phase II ESA indicate that soils beneath the site consist

predominantly of dry to moist, dense to very dense, brown, cohesive, fine to medium sand

with trace silt. Process fill material was observed in the top four to seven inches of each

boring.

The CTDEP Bedrock Geological Map of Connecticut (1985) shows that the bedrock

underlying the site is the Portland Arkose which is a reddish-brown arkose (brownstone).

Bedrock was not encountered in the soil borings installed during the Phase II ESA.

3.2 Site Hydrology

According to the USGS 7.5 minute topographic map of the Middletown, Connecticut

quadrangle, the site is located at an approximate elevation of 80 feet National Geodetic

Vertical Datum (NGVD). The site topography is generally level. Surface runoff from

and ground water beneath the site are both likely to flow in a east-northeasterly direction

towards the Connecticut River located approximately 2,500 feet east of the study site.

4.0 SITE INVESTIGATIONS

The following subsections describe the scope of the Phase II ESA conducted at the Former Middletown Police Station, and detail activities conducted to meet project objectives.

4.1 Phase II ESA Objectives

The primary objectives of the Phase II ESA at the Former Middletown Police Station were to evaluate soils and ground water adjacent to the former location of the former leaking UST and existing gasoline UST, determine discharge points of the suspect floor drains in the northern and central sections of the study site building, and characterize the material located in the target butt area of the firing range located within the northern section of the study site building.

The remedial goals for the site are to bring the environmental conditions of the soil and ground water into compliance as per the applicable criteria listed in the Connecticut Department of Environmental Protection Remedial Standard Regulations (CTDEP RSRs) (Sections 22a-133k-1 through -3). The RSRs (finalized January 13, 1996) specify numeric criteria that apply to concentrations of contaminants in soil and ground water. The two soil regulations used in this report include the Pollutant Mobility Criteria (PMC) and the Direct Exposure Criteria (DEC) while for ground water, the Surface Water Protection Criteria (SWPC) and the Residential Volatilization Criteria (RES VC) are used. The target butt material analytical results were compared to the Residential Direct Exposure Criteria (RES DEC), GB Pollutant Mobility Criteria (GB PMC), and the Hazardous Waste Criteria.

4.2 Soil Sampling

The objectives of the subsurface soil sampling program at the Former Middletown Police Station were to evaluate the nature and extent of subsurface soils in the vicinity of the former leaking UST and existing gasoline UST.

On July 11, 2000, four soil borings (PD-1 through PD-4) were installed at representative locations adjacent to the gasoline UST located adjacent to the northwestern section of the study site building. The soil borings were installed by Glacier Drilling, Inc. of Meriden, Connecticut using a geoprobe. Locations of soil borings are provided on Figure 3.

One soil sample (three samples total) was collected from three of the four soil borings for laboratory analysis. These samples were collected based on preliminary field screening readings and proximity to the gasoline UST. Three soil samples (220-SS-PD-1 (2-4'), 220-SS-PD-2 (2-4'), and 220-SS-PD-3 (2-4')) were analyzed for Connecticut Extractable Total Petroleum Hydrocarbons (via CT ETPH), volatile organic compounds (VOCs) (EPA Method 8021B+MTBE) and Synthetic Precipitate Leaching Procedure (SPLP) lead. A sample from soil boring PD-4 was not submitted due to preliminary field screening and distance from tank.

Soil borings were installed to a depth of approximately six and a half (6.5) feet below grade to approximately thirteen (13) feet below grade. Soil samples were collected from two (2) to four (4) feet below grade. Each soil sample was described according to the Burmister Soil Classification System and field-screened for VOCs using a PE Photovac Photoionization Detector (PID) and the headspace field-screening method. After collection and field screening, soil samples were placed in a chilled cooler and delivered to Connecticut Testing Laboratories, Inc. of Meriden, Connecticut, a State of Connecticut certified analytical laboratory. Boring logs are provided in Appendix A.

Soil in each soil boring generally consisted of dry to moist, dense to very dense, brown, cohesive, fine to medium sand with trace silt. Process fill material was observed in the top four (4) to seven (7) inches of each boring. Staining or odors were not observed in

any of the soil samples collected.

Ground water was encountered during drilling activities in soil borings PD-1 and PD-3 at

a depth of approximately six (6) to six and a half (6.5) feet below grade. No sheen was

observed in the ground water encountered.

4.3 Ground Water Quality Sampling

The objectives of the ground water sampling program at the Former Middletown Police

Station were to evaluate ground water quality in the vicinity of the gasoline UST.

On July 11, 2000, two temporary piezometers were installed in previously installed soil

borings PD-1 and PD-3 adjacent to the gasoline UST. Ground water depth at the site

ranged from approximately six (6) to six and a half (6.5) feet below grade in PD-1 and

PD-3. Temporary piezometers were installed by Glacier Drilling, Inc. of Meriden,

Connecticut. Locations of temporary peizometers are provided on Figure 3.

Two ground water samples (220-GW-PD-1 and 220-GW-PD-3) were collected from two

of the completed borings (PD-1 and PD-3). Ground water samples collected from the

temporary piezometers were analyzed for total petroleum hydrocarbons (TPH) (EPA

Method 418.1), volatile organic compounds (VOCs) (EPA Method 8021B+MTBE), and

dissolved lead. After collection, water samples were placed in a chilled cooler and

delivered to Connecticut Testing Laboratories, Inc. of Meriden, Connecticut, a State of

Connecticut certified analytical laboratory.

Former Middletown Police Station 62-66 Church Street

Prior to obtaining a water sample from each piezometer, the ground water-level in the piezometer was measured to the nearest 0.01 of a foot with an electronic water-level meter. Water level data obtained at the time of sampling was used to calculate required purge volumes prior to sample collection. Following the measurement of the water levels, an amount of water equal to approximately three well volumes was purged from each piezometer to ensure representative samples were acquired from the aquifer.

Purging was accomplished with a dedicated polytetrafluoroethene (Teflon®) bailer.

Prior to leaving the study site, the temporary piezometers were removed from their respective boring location and disposed of off-site. The open boring was then backfilled to grade with clean sand.

4.4 Firing Range Sampling

The objectives of the target butt material sampling activities within the firing range at the Former Middletown Police Station were to characterize the material (gravel, sand, and slag) for waste disposal purposes for anticipated demolition activities.

On July 11, 2000, two samples (220-FR-1 and 220-FR-2) were collected from the target butt area of the firing range of the Former Middletown Police Station. These samples were observed to consist mainly of gravel, coarse sand, and pieces of slag. Sample locations are provided on Figure 3.

At the conclusion of the target butt area sampling, samples were placed in a chilled cooler and delivered to Connecticut Testing Laboratories, Inc. of Meriden, Connecticut, a State of Connecticut certified analytical laboratory. These samples were submitted and analyzed for total and Toxicity Characteristic Leaching Procedure (TCLP) lead.

4.5 Floor Drain Discharge Point Investigation

The objectives of the floor drain discharge point investigation were to determine the

discharge points of four suspect floor drains located within the northern and central

section of the Former Middletown Police Station. This investigation was prompted due

to former automobile repair training that had occurred within the northern section of the

study site building.

On July 12, 2000, four suspect floor drains (FD-1 through FD-4) located within the

northern and central section of the study site building were investigated to determine their

respective points of discharge. Floor drain FD-1 was located within the garage area of

the northern section of the study site building. Floor drains FD-2 and FD-3 were located

within a bathroom and shower area within the northern section of the study site building.

Floor drain FD-4 was located in the boiler room within the central section of the study

site building. Locations of suspect floor drains are provided on Figure 3.

The investigation was performed by pumping water into each respective floor drain. A

green dye was added into the drain causing the water to turn green and, therefore, easier

to recognize water from the respective drain when/if it entered into the sanitary sewer

system. Approximately ten minutes was allowed between each floor drain test to let the

green dye flush out of the system. The sanitary sewer was accessed and observed at the

Broad Street and Church Street intersection, and William Street, adjacent to the north of

the study site. The investigation was conducted by the City of Middletown Water and

Sewer Department.

Former Middletown Police Station 62-66 Church Street Phase II Environmental Site Assessment 5.0 RESULTS OF INVESTIGATION

> 5.1 Soil Characterization

Soil analytical results, summarized in Table 1, indicated that no compounds were

detected in soil samples collected. Laboratory analytical reports are provided in

Appendix B.

5.2 **Ground Water Quality**

Ground water analytical results for ground water, summarized in Table 2, indicate that

Methyl tert-butyl ether (MTBE) was detected in ground water samples 220-GW-PD-1

and 220-GW-PD-3 at concentrations of 974 ug/L and 4 ug/L, respectively. Neither of

these detections exceeded the Residential Volatilization Criterion for MTBE. A Surface

Water Protection Criteria has not been established for MTBE. Laboratory analytical

reports are provided in Appendix B.

5.3 Firing Range Characterization

Laboratory results for the target butt area material, summarized in Table 3, indicate that

elevated levels of both TCLP lead and total lead were detected in the samples collected.

The concentrations of both TCLP and total lead from both samples collected exceed their

respective Residential Direct Exposure Criteria (RES DEC), GB Pollutant Mobility

Criteria (GB PMC), and Hazardous Waste Criteria. This material must be removed from

the site as hazardous waste prior to site demolition activities.

5.4 Determination of Floor Drain Discharge Points

Suspect floor drain investigation results indicated that all floor drains (FD-1 through FD-4) investigated within the northern and central section of the study site building discharge to the sanitary sewer located on Church Street, adjacent to the south. In conclusion, it is not likely that a dry well or any other subsurface discharge structure are currently located at the study site.

6.0 SUMMARY OF FINDINGS AND RECOMMENDATIONS

According to a Phase I Environmental Site Assessment conducted by Marin Environmental, Inc.

in July 2000, a gasoline UST was located adjacent to the northwestern section of the study site

building. According to the Phase I, the current tank was installed in approximately March of

1991. One, 3,000-gallon leaking gasoline UST was located in this area previous to March 1991.

Information regarding the installation of the previous tank, tank removal activities, and

characteristics of the present tank were not located in Municipal or State files.

A firing range was observed on the northern section of the study site building. The firing range

contained a target butt area which consisted of a bermed area of gravel, sand and slag. This

target butt area was used to collect spent bullets during firearm practice.

Floor drains were located throughout the northern and central sections of the study site building.

According to the 1950 Sanborn Map of the study site, the northern section of the study site

building was utilized as a automobile repair training area. Information regarding the discharge

points of the floor drains within the northern and central section of the study site building was

not found in Municipal or State files.

The objectives of this Phase II Environmental Site Assessment includes the evaluation and

characterization of soils and ground water adjacent to the existing gasoline UST (also the

location of the former leaking gasoline UST), characterize the material contained in the target

butt area for disposal purposes, and the determination of the discharge points of the suspect floor

drains located within the northern and central sections of the study site.

<u>Findings</u>

On July 11, 2000, a total of four soil borings (PD-1 through PD-4) were advanced adjacent to the

gasoline UST located adjacent to the northwestern section of the study site building. Two

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temporary piezometers were installed in soil boring location PD-1 and PD-3 to collected ground water samples adjacent to the gasoline UST. Three soil samples (220-SS-PD-1 (2-4'), 220-SS-PD-2 (2-4'), and 220-SS-PD-3 (2-4')) were collected and analyzed based on PID readings and proximity to the gasoline UST. Soil samples were analyzed for total petroleum hydrocarbons (TPH) via Connecticut Extractable Total Petroleum Hydrocarbons (CT ETPH), volatile organic compounds (VOCs) via EPA Method 8021B + MTBE, and lead via Synthetic Precipitate Leaching Procedure (SPLP). Soil laboratory analytical results indicate that no compounds were detected in soil samples collected.

On July 11, 2000, a total of two ground water samples (220-GW-PD-1 and 220-GW-PD-3) were collected from the two temporary piezometers installed adjacent to the gasoline UST. Ground water samples were analyzed for TPH via EPA Method 418.1, VOCs via EPA Method 8021B+MTBE, and dissolved lead. Based on the results of the analysis, it appears that a release has occurred to the environment from the previous or existing UST. Ground water laboratory analytical results indicated that Methyl tert-butyl ether (MTBE) was detected in ground water samples 220-GW-PD-1 and 220-GW-PD-3 at concentrations of 974 ug/L and 4 ug/L, respectively. Neither of these detections exceed the Residential Volatilization Criteria for MTBE.

On July 11, 2000, Marin personnel collected a total of two samples (220-FR-1 and 220-FR-2) from the target butt area of the firing range located within the northern section of the study site building. Samples were analyzed for lead via mass analysis and Toxicity Characteristic Leaching Procedure (TCLP). Analytical results indicated that elevated levels of both TCLP lead and total lead were detected in the samples collected. The concentrations of both TCLP and total lead from both samples collected exceeded their respective Residential Direct Exposure Criteria, GB Pollutant Mobility Criteria, and the Hazardous Waste Criteria. This material must be removed from the site and disposed of as a hazardous waste and the area decontaminated prior to site demolition activities.

On July 12, 2000, Marin personnel oversaw a floor drain investigation of four suspect floor drains (FD-1 through FD-4) conducted by the City of Middletown Sewer and Water Department at the study site building. The floor drains in the northern and central sections of the study site building were investigated to determine the discharge points of each floor drain. The investigation concluded that the suspect floor drains investigated discharged to the sanitary sewer system on Church Street adjacent to the south of the study site.

Recommendations

As a result of the Phase II ESA, the following recommendations are provided:

- If the existing gasoline UST will not be used as part of future redevelopment, Marin recommends that it be removed by a licensed contractor. Tank removal specifications should be developed to ensure proper removal of the tank and for bidding purposes. During removal, the soil conditions should be evaluated by a qualified consultant and post-closure sampling should be conducted per CTDEP protocols.
- Since no information was found in Municipal or State files regarding a heat source prior to approximately 1979, it is possible that the study site may contain an abandoned fuel oil UST.
 It is recommended that a qualified consultant occasionally inspect the site for potential USTs during site demolition and sub-surface activities.
- The material located in the target butt area of the firing range must be removed prior to site demolition activities and disposed of as hazardous waste. In addition, this area should also be decontaminated. Removal and decontamination specifications for this activity should be developed to ensure proper procedures are used and for bidding purposes. This work should be supervised by a qualified consultant.
- Various containers of kerosene, hydraulic oil, refrigeration oil, pump oil, Arcton 22
 (chlorofluoromethane), and suspect mercury containing light bulbs observed throughout the
 study site building should be removed from the site by a licensed contractor prior to site
 demolition activities according to Local and State regulations.

7.0 LIMITATIONS

This report was completed by Marin Environmental, Inc. (Marin) for the sole use the City of

Middletown in connection with an assessment of on-site environmental conditions. Use of the

report by any other person for any other purpose is not authorized except with the prior written

consent of Marin.

The work was undertaken to assess environmental conditions specifically on the subject property

in accordance with generally accepted engineering and hydrogeological practices. No other

warranty, expressed or implied, is made. Absolute assurance that any and all possible

contamination at the site was identified cannot be provided. Cost estimates are based upon

assumed conditions, requirements, and quantities and should be considered as conceptual in

nature. Contractor-submitted information will be required to obtain actual cost based upon

current industry prices.

The report conclusions are based, in part, on information provided by the client, their agents, or

third parties, including State or local officials. Marin assumes no responsibility for the accuracy

and completeness of this information.

Where visual observations are included in the report, they represent conditions at the time of

inspection, and may not be indicative of past or future site conditions.

Former Middletown Police Station 62-66 Church Street

8.0 REFERENCES

- United States Department of the Interior, United States Geological Survey. Topographic Map of the Middletown Quadrangle, 7.5 Minute Series, 1965 (photo-revised 1992).
- United States Department of the Interior, United States Geological Survey. Surficial Materials Map of Connecticut, 1992.
- United States Department of the Interior, Connecticut Geological and Natural History Survey. Bedrock Geological Map of Connecticut, 1985.
- Connecticut Department of Environmental Protection. Water Quality Classification Map of Connecticut, 1987.

Table 1 Table 2 Table 3

Summary of Soil Analytical Results
Summary of Ground Water Analytical Results
Summary of Firing Range Analytical Results

Summary of Soil Analytical Results Former Middletown Police Station 62-66 Church Street Middletown, Connecticut

220-SS-PD-1 (2-4') 220-SS-PD-2 (2-4') 220-SS-PD-3 (2-4')	drocarbons (CT ETPH) (mg/kg)	BDL BDL BDL	dure (SPLP) (mg/L)	BDL BDL BDL		BDL BDL BDL	
GB Pollutant Mobility Criteria 220-SS	ntal Protection Extractable Total	7200	thetic Precipitate Leaching Procedure (SPLP) (mg/L)	0.15	le Organic Compounds EPA Method 8021B + MTBE (ug/kg)	Varies	
Residential Direct Exposure Criteria	EM	200	Lead via Synth	NE	Volatile Orgo	Varies	
Parameters	Cr brou	CLEAM		SPLP Lead	· · · · · · · · · · · · · · · · · · ·	Volatile Organic Compounds	

Notes:

mg/kg=milligrams per kilograms (parts per million) mg/L=milligrams per liter (parts per million) ug/kg=micrograms per kilograms (parts per billion) BDL=Below Detection Limit NE- Criteria Not Established Samples collected on July 11, 2000

Middletown/A0-0220/Table 2 Summary of Ground Water Analytical Results.xls

Table 2 Summary of Ground Water Analytical Results Former Middletown Police Station 62-66 Church Street Middletown, Connecticut

Protectio Total Repeated Lead Jissolved Lead Volatile Or.	Protection Criteria Total Petroleum Hydre NE 0.013 olatile Organic Compount	urface Water Residential Volatilization tection Criteria Criteria 220-G nul Petroleum Hydrocarbons EPA Method 418.1 (mg/L) NE NE NE NE 0.013 NE EPA Method 8021B+MIBE (ug/L)		220-GW-PD-3 BDL BDL
	בו בו	20,000	974.0	40
	}	20,00	V/4.∪	4.0

Notes:

mg/L=milligrams per liter (parts per million)
ug/L=micrograms per liter (parts per billion)
BDL=Below Detection Limit
NE=Criteria Not Established
Samples collected on July 11, 2000

Table 3
Summary of Firing Range Analytical Results
Former Middletown Police Station
62-66 Church Street

Middletown, Connecticut

220-FR-2 1,240 43.200	
220-FR-1 (L) 1,210 40,000	
Hazardous Waste Criteria Procedure (TCLP) (mg 5.0	
GB Pollutant Mobility Criteria Characteristic Leaching P 0.15 Iotal Lead (mg/kg) NE	
Residential Direct Exposure Criteria Lead vio Toxicity NE 500	
Parameter TCLP Lead Total Lead	

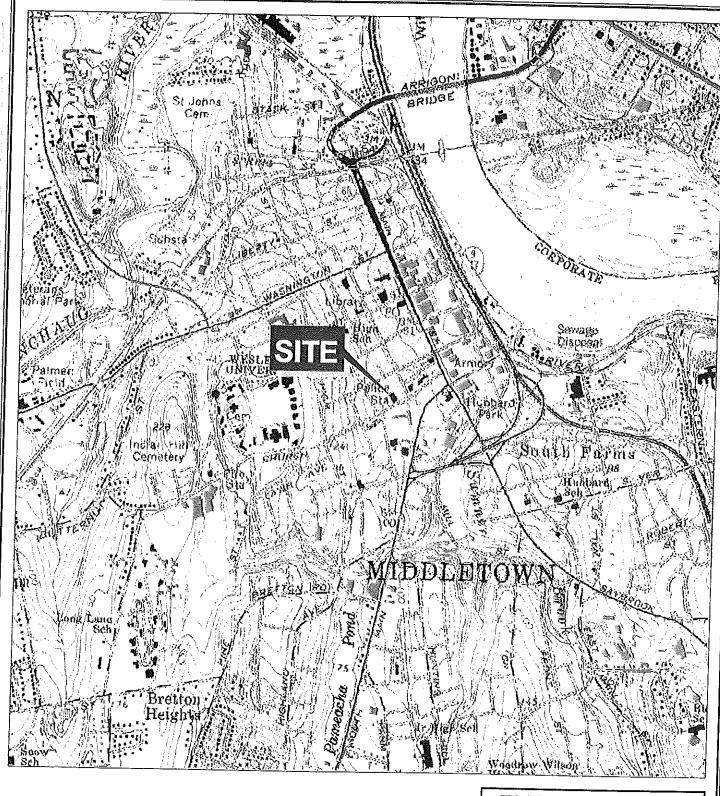
Notes:

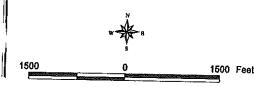
mg/L=milligrams per liter (parts per million)
mg/kg=milligrams per kilograms (parts per million)
NE=Criteria Not Established
Exceedences are in **BOLD**.

Samples were collected on July 11, 2000

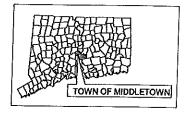
Figure 1 Figure 2 Figure 3

Site Location Map Site Plan Areas of Investigation





MAP TAKEN FROM 7.5 MINUTE USGS TOPOGRAPHIC MAP OF THE MIDDLETOWN QUADRANGLE, 1965 (PHOTO REVISED 1992) AND OF THE MIDDLE HADDAM QUADRANGLE, 1961 (PHOTO REVISED 1984).



MARIN

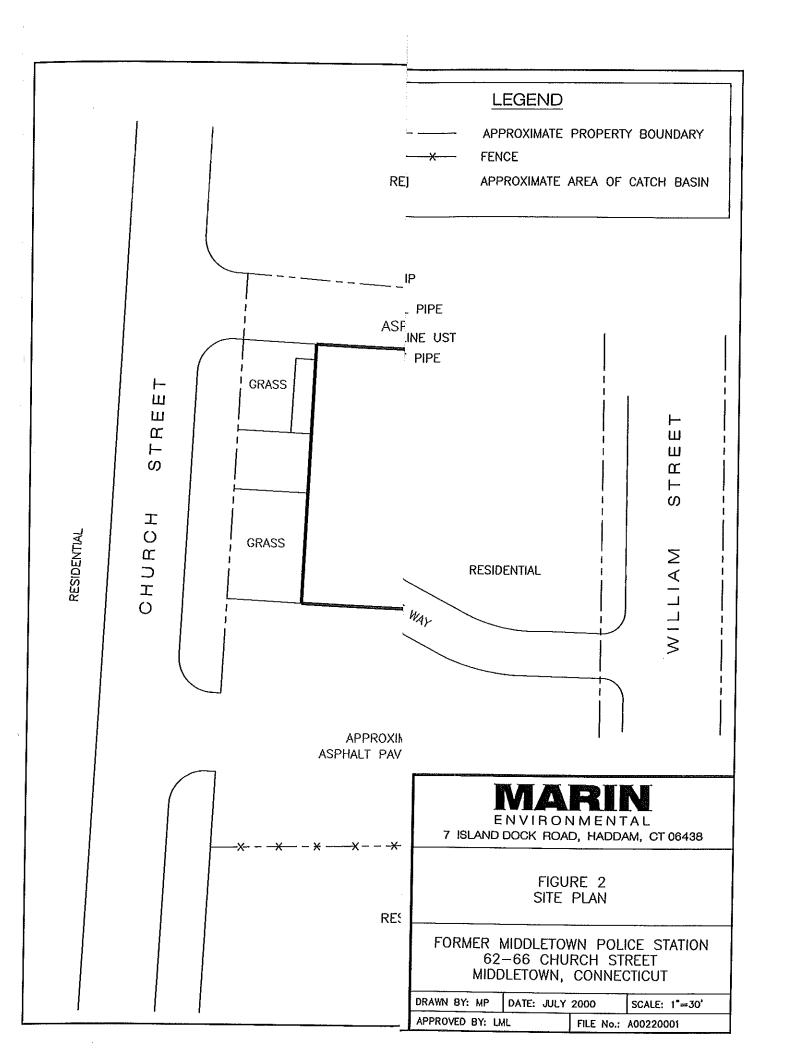
ENVIRONMENTAL 7 ISLAND DOCK ROAD, HADDAM, CT 06438

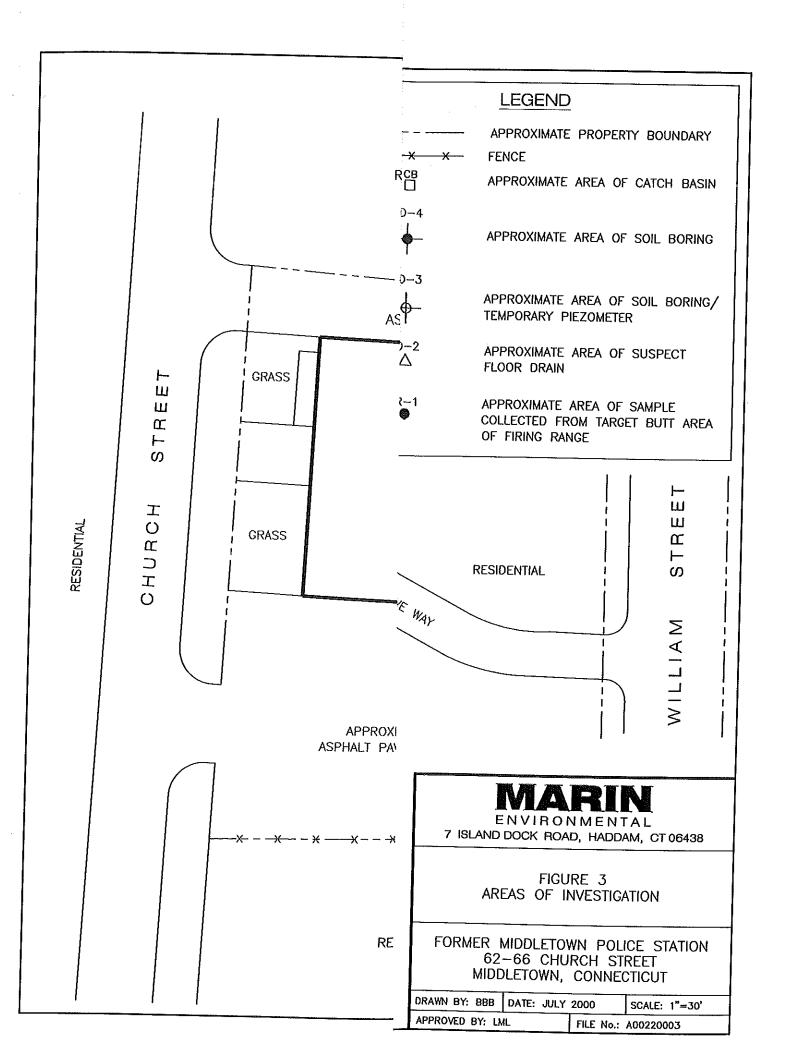
> FIGURE 1 SITE LOCATION MAP

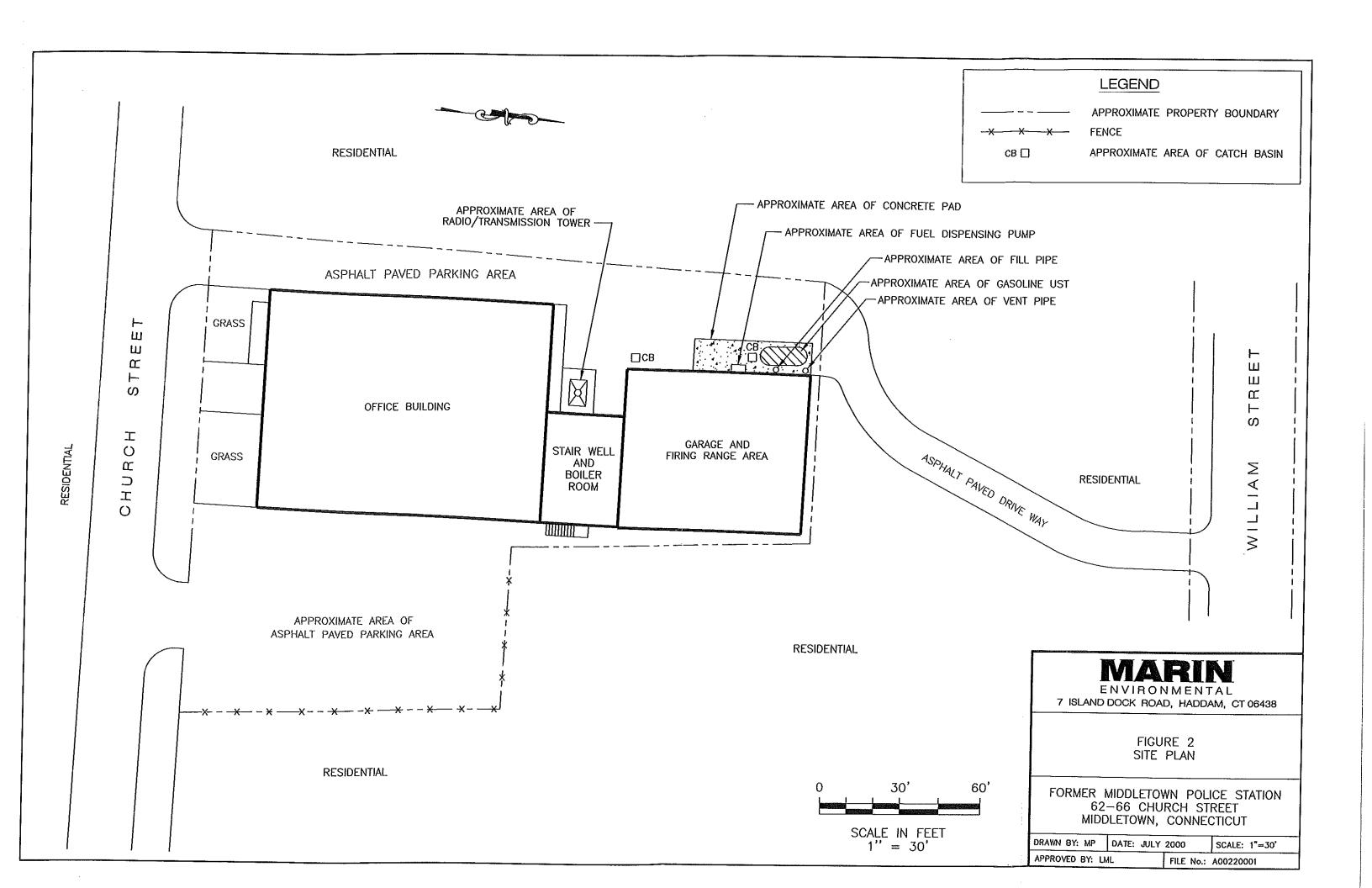
FORMER MIDDLETOWN POLICE STATION 62-66 CHURCH STREET MIDDLETOWN, CT 06457

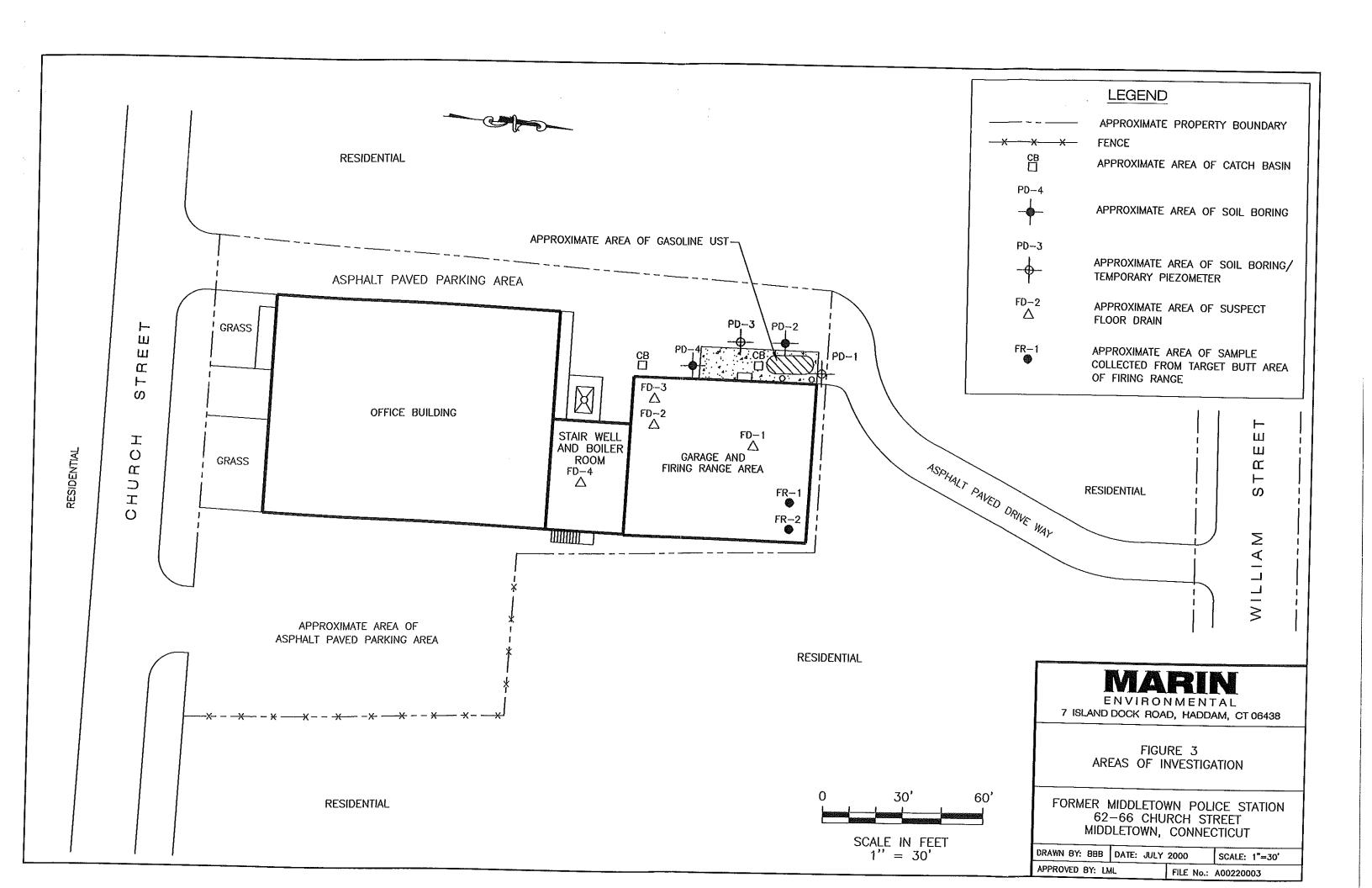
JULY 2000

FILE NO: A0-0220









LABORATORY ANALYTICAL DATA REPORTS

MARIN

City of Middletown
Former Middletown Police Station
62-66 Church Street
Middletown, Connecticut
AO-0220

BORING: PD-1

(Page 1 of 1)

DRILLING INFORMATION

Drilling Dates

: 7/11/00

Field Supervisor Drilling Company : Lee LeBlanc : Glacier Drilling

Driffers

: Date & Marvin

Drilling method

: Geoprobe

Boring Diameter

2"

: with 4' dedicated sleeves

<u> </u>					Driffers : Date	e ox ma	21 ¥	····	1
Depth in Feet	Samples	Blow Count	Recovery (inches)	PID (ppm)	DESCRIPTION		BORING: PD-1	REMARKS	Depth in Feet
0		ii -	I	1		7		Approximately 6" of asphalt	0-
1	1	N/A	14	0.0	0-2': Dry, medium dense, dark brown to brown, medium to very coarse SAND, some Gravel			Top 6" - process fill No odor, no staining	1
2					2-4': Dry, medium dense, brown, medium to coarse SAND			No odor, no staining Sample collected for chemical analysis at 2-4' interval	2-
3] 2	N/A	14	0.0					3 –
4		THE STATE OF THE S			4-6': Dry, very dense, brown, fine to medium SAND			No odor, no staining cohesive soils	4-
5-	3	N/A	24	0.0			· · · · ·		5-
6					6-8': Moist, very dense, brown, fine to medium SAND			No odor, no staining cohesive soils	6_
7.	4	N/A	24	0.0					7_
8.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				8-10': Moist, very dense, brown, fine to medium SAND, trace Silt			No odor, no staining very cohesive soils	8 - 1 - 1 - 1 - 9 - 1
9-	5	N/A	18	0.0				,	ָ ק
10-					10-12': Moist, very dense, brown, fine SAND, trace Silt			No odor, no staining very cohesive soils	10
11.	6	N/A	18	0,0				No odor, no staining very cohesive soils	11 -
12-] _				12-13': Wet, very dense, brown, fine SAND,				12
13-	7	N/A	13	0.0	some Silt			Refusal at 13' below grade Water at 6.3' below grade	13-

LITHOLOGIC DESCRIPTION:

and: 35 to 50% some: 20 to 35% little: 10 to 20% trace: 0 to 10%

07-28-2000 H:PROJECTS/A0-0220/BORINGS/PD-1.80R



City of Middletown Former Middletown Police Station 62-66 Church Street Middletown, Connecticut AO-0220

BORING: PD-2

(Page 1 of 1)

DRILLING INFORMATION

Drilling Dates Field Supervisor : 7/11/00 : Lee LeBlanc

Drilling Company

: Glacier Drilling

Drilling method

: Geoprobe

Boring Diameter

: with 4' dedicated sleeves

Deplh	les	Blow Count	Recovery (inches)	(md	DESCRIPTION	BORING; PD-2 :	PEMARKO	Depti
in Feet	Samples	Blow	Reco	PID (ppm)	DESCRIPTION		REMARKS	in Feet
1-	1	N/A	15	8.4	0-2': Dry, medium dense, dark brown to brown, medium to coarse SAND, trace Silt		Approximately 6" of asphalt	1.
2-11				,	2-4':Moist, dense, brown, fine to medium SAND, trace Silt		Top 5" - process fill No odor, no staining	2-
3-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	2	N/A	15	13.9			No odor, no staining Sample collected for chemical analysis at 2-4' interval	3-
4					4-6': Moist, very dense, light brown to brown, medium to fine SAND, some Silt		No odor, no staining very cohesive soils	4 -
5	3	N/A	18	2.8			Refusal at 6.5' below grade	5-

H:/PROJECTS/A0-0220/BORINGS/PD-2.BOR

LITHOLOGIC DESCRIPTION:

and: 35 to 50% some: 20 to 35% little: 10 to 20% trace: 0 to 10%

2000 00 50



City of Middletown Former Middletown Police Station 62-66 Church Street Middletown, Connecticut AO-0220

BORING: PD-3

(Page 1 of 1)

DRILLING INFORMATION

Drilling Dates Field Supervisor : 7/11/00 : Lee LeBlanc

: Glacier Drilling

: Dale & Marvin

Drilling Company

Drillers

Drilling method

: Geoprobe

Boring Diameter

2"

: with 4' dedicated sleeves

Depth In Feet	Samples	Blow Count	Recovery (inches)	PID (ppm)	DESCRIPTION		BORING :); PD-3	REMARKS	Depth in Feet
0-	8	<u> m</u>	<u>«</u>	<u> </u>	0-2': Dry, dense, dark brown to brown, medium to coarse SAND, trace Gravel				Approximately 4" of asphalt	0
1,1,1,1,1	1	N/A	16	19.1	medium to coarse SAND, trace Gravel				Top 7" - process fill No odor, no staining	1.
2-		***************************************			2-4':Dry, dense, brown, fine to medium SAND				No odor, no staining Sample collected for chemical analysis at 2-4' interval	2-
37	2	N/A	16	20.1						3-
4-11111					4-6':Dry, dense, brown, fine to medium SAND				No odor, no staining cohesive soils	4-
5-1-1-1-1	3	N/A	15	0.4						5-
9 11111111					6-8': Moist, dense, brown, fine to medium SAND, trace Silt	.▼			No odor, no staining very cohesive soils	6-
2 1 1	4	N/A	15	0.0		***				7-
8 11 11					8-10': Moist, dense, brown, fine SAND, trace Silt				No odor, no staining very cohesive soils	8-
المناطنينين منتطنينين	5	N/A	22	0.1					Refusal at 10' below grade Water at 6.5 below grade	9-
10										10-

H:/PROJECTS/A0-0220/BORINGS/PD-3.80R LITHOLOGIC DESCRIPTION:

35 to 50% and: 20 to 35% some: 10 to 20% little: 0 to 10% trace:

MARIN

City of Middletown Former Middletown Police Station 62-66 Church Street Middletown, Connecticut AO-0220

BORING: PD-4

(Page 1 of 1)

DRILLING INFORMATION

Drilling Dates

: 7/11/00

Field Supervisor : Lee LeBlanc

Drilling method

: Geoprobe

Boring Diameter : 2"

: with 4' dedicated sleeves

					Orilling Company Drillers	: Glacier Drilling : Dale & Marvin		
Depth in Feet	Samples	Blow Count	Recovery (inches)	PID (ppm)	DESCRIPTION	BORING: PD-4 :	REMARKS	Depth in Feet
1 1 1	1	N/A	14	0.0	0-2': Dry, medium dense, dark brown to brown, medium to coarse SAND		Approximately 6" of asphalt Top 4" - process fill No odor, no staining	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
3-1	2	N/A	14	0.0	2-4': Dry, dense, brown fine to medium SAND, trace Silt		No odor, no staining cohesive soils	3,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1
4 4 1	3	N/A	20	0.0	4-6': Moist, dense, brown, fine to medium SAND, trace Silt		No odor, no staining very cohesive soils	4-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1
6	4	N/A	20	0.0	6-8': Moist, dense, brown, fine to medium SAND, trace Silt		No odor, no staining very cohesive soils	6-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1
7	·	evs.					Refusal at 7' below grade No sample collected for chemica analysis	-

H:\PROJECTS\A0-0220\BORINGS\PD-4.8OR

LITHOLOGIC DESCRIPTION:

and: 35 to 50% some: 20 to 35% little: 10 to 20% trace: 0 to 10%

CTL Lab No.: 700093

Job/PO No.: AO-0220

Report Date: 7/19/00

Date Extracted: 7/12/00

Date Analyzed: 7/12/00

Analyst: SR

EPA METHOD 602/8021B

Date Samples Rec'd: 7/11/00

Matrix Type:

CTL Sample #: Field ID:

8529 220-SS-PD S 8530 8531

1 (2-4')

220-SS-PD 2 (2-4')

200-SS-PD 3 (2-4')

Possite of Analysis

Parameters	MDL				
Benzene	20	BDL	BDL	BDL	
Toluene	25	BDL	BDL	BDL	
Chlorobenzene	25	BDL	BDL	BDL	
Ethyl Benzene	25	BDL	BDL	BDL	
p/m-Xylene	25	BDL	BDL	BDL	
o-Xylene	25	BDL	BDL	BDL	•
1,4-Dichlorobenzene	25	BDL	BDL	BDL	
1,3-Dichlorobenzene	25	BDL	BDL	BDL	
1,2-Dichlorobenzene	25	BDL	BDL	BDL	
MTBE	50	BDL	BDL	BDL	
1.4-Dichlorobutane-SR	 	104	106	86	
4-Bromochlorobenzene-SR		94	102	83	

SR= Surrogate Recovery - percent

MDL= Minimum Detectable Level BDL= Below Detection Level Units= ppb

Matrix Type: W= Water/Aqueous S= Soil/Solid O= Oil/Hydrocarbon

July 19, 2000

Marin Environmental 7 Island Dock Rd. Haddam, CT 06438

Attn: Mr. Lee LeBlanc

Please find attached laboratory report(s) for the samples submitted on: July 11, 2000.

All pertinent information for this analysis is located on the report. Should it be necessary to contact us regarding billing or the test results, please have the following information readily available:

Lab No.

· 700093

PO/Job No.

: AO-0220

Invoice No.

108359

Customer No. : 216

Please contact us if you have any questions.

Stephen^VJ. Franco Laboratory Director

PH-0547



STEPHEN J. FRANCO Laboratory Director

PHONE **■ 230/634-3731**

165 GRACEY AVENUE ■ MERIDEN, CT ■ 06451

Date Samples Received: 7/11/00

Client Name: Marin Environmental

CTL Lab No.: 700093

Report Date: 7/19/00

PO/ Job No. : AO-0220

RESULTS OF ANALYSIS

Matrix Type:

W

W

CTL Sample No.:

¥

8527 220-GW 8528

220-GW

PD-1

PD-3

Parameters

Field ID:

MDL

- araniotoro				_	
Dissolved Lead-mg/L	0.005	BDL	BDL]
Oil & Grease (TPH)-mg/L	0.5	BDL	BDL		1

SPLP EPA 1312

Matrix Type:

S

S

s

CTL Sample No.:

8529

8530

8531

Field ID:

220-SS-PD

1 (2-4')

220-SS-PD 2 (2-4')

220-SS-PD 3 (2-4')

Parameters

MDL

Le	ad-n	ng/L

0.005

BDL

BDL

BDL

Matrix Type:

S

S

s

CTL Sample No.:

8529

8530

8531

Field ID:

220-SS-PD

220-SS-PD

220-SS-PD

1 (2-4')

2 (2-4')

3 (2-4')

BDL

Parameters

MDL

CT ETPH-mg/kg

25

BDL BDL

MDL= Minimum Detectable Level BDL= Below Detection Level

Matrix Type: W= Water/Aqueous S= Soil/Solid O= Oil/Hydrocarbon

Date Samples Received: 7/11/00

Client Name: Marin Environmental

CTL Lab No.: 700093

Report Date: 7/19/00

PO/ Job No. : AO-0220

RESULTS OF ANALYSIS

TCLP EPA 1311

Matrix Type:

S

S

CTL Sample No.:

8532

8533

Field ID:

220-FR-1

220-FR-2

Parameters

MDL

1,210 0.5 Lead-mg/L

1,240

Mass Analysis EPA 3050B

Matrix Type:

S

S

CTL Sample No.:

8532

8533

Field ID:

220-FR-1

220-FR-2

Parameters

MDL

Lead-mg/kg

40,000

10.0

43,200

MDL= Minimum Detectable Level BDL= Below Detection Level

Matrix Type: W= Water/Aqueous S= Soil/Solid O= Oil/Hydrocarbon

CTL Lab No.: 700093

Job/PO No. : AO-0220 Report Date : 7/19/00 Date Analyzed: 7/12-7/13/00

Analyst: SR

EPA METHOD 601/8021B

Date Samples Rec'd: 7/11/00

Matrix Type: Field ID: W 220-GW W

PD-1

220-GW PD-3

Results of Analysis

Results of Analysis				
Parameters	MDL			
Chloromethane	2	BDL	BDL	
Vinylchloride	2	BDL	BDL	
Bromomethane	2	BDL	BDL.	
Chloroethane	2	BDL	BDL	
Trichlorofluoromethane	1	BDL.	BDL	
1.1-Dichloroethylene	1	BDL.	BDL	
Methylenechloride	1	BDL	BDL	
trans-1,2-Dichloroethylene	1	BDL	BDL	
1,1-Dichloroethane	1	BDL	BDL	
cis-1,2-Dichloroethylene	1	BDL	BDL.	
Chloroform	1	8DL	BDL	
1,1,1-Trichloroethane	1	BDL.	BDL	
Carbontetrachloride	1	BDL	8DL	
1,2-Dichloroethane	1	BDL	BDL	
Trichloroethylene	1	BDL	BDL	
1,2-Dichloropropane	1	BDL.	BDL	
Bromodichloromethane	1	BDL	BDL	
2-Chlorethylvinylether	1	BDL	BDL	
Dibromomethane	1	BDL	BDL	
cis-1,3-Dichloropropylene	1	BDL	BDL	
trans-1,3Dichloropropylene	1	BDL	BDL	
1,1,2-Trichloroethane	1	BDL	BDL	
Tetrachloroethylene	1	BDL	BDL	
Dibromochloromethane	1	BDL	BDL	
1-Chlorohexane	1	BDL	BDL	
Chlorobenzene	1	BDL	BDL	
bls(2-Chloroethoxy)methane	10	BDL	BDL	
bis(2Chloroisopropyl)ether	10	BDL	BDL	
Chloromethyl methyl ether	10	BDL	BDL	
Bromoform	1	BDL	BDL	
1,1,2,2-Tetrachloroethane	1	BDL	8DL	
Trichloropropane	1	BDL	BDL	
Bromobenzene	1	BDL	BDL	
Chlorotoluene	1	BDL	BDL	
1,3-Dichlorobenzene	1	BDL	BDL	
1,4-Dichlorobenzene	1	BDL	BDL	<u> </u>
Benzyl Chloride	10	BDL	BDL	
1,2-Dichlorobenzene	1	BDL	BDL	
1,4-Dichlorobutane-SR		107	97	
4-Bromochlorobenzene-SR		100	92	

SR= Surrogate Recovery - percent

MDL= Minimum Detectable Level BDL= Below Detection Level Units= ppb

Matrix Type: W = Water/Aqueous S= Soil/Solid O= Oil/Hydrocarbon

CTL Lab No.: 700093

Job/PO No. : AO-0220 Report Date : 7/19/00 Date Analyzed: 7/12-7/13/00

Analyst: SR

EPA METHOD 602/8021B

Date Samples Rec'd: 7/11/00

Matrix Type:

W 220-G W

Field ID:

220-GW PD-1 220-GW PD-3

Results of Analysis

Parameters	MDL			
Benzene	1	BDL	BDL	
Toluene	1	BDL	BDL.	
Chlorobenzene	1	BDL	BDL	
Ethyl Benzene	1	BDL	BDL	
p/m-Xylene	1	BDL	BDL	
o-Xylene	1	BDL	BDL	
1,4-Dichlorobenzene	1	BDL	BDL	
1,3-Dichlorobenzene	1	BDL	BDL	
1,2-Dichlorobenzene	1	BDL	BDL	
MTBE	1	974.0	4.0	
1,4-Dichlorobutane-SR		104	101	
4-Bromochlorobenzene-SR		97	96	

SR= Surrogate Recovery - percent

MDL= Minimum Detectable Level BDL= Below Detection Level Units= ppb

Matrix Type: W= Water/Aqueous S= Soil/Solid O= Oil/Hydrocarbon

CTL Lab No.: 700093

Job/PO No. : AO-0220 Report Date : 7/19/00 Date Extracted: 7/12/00

Date Analyzed: 7/12/00

Analyst: SR

EPA METHOD 601/8021B

Date Samples Rec'd: 7/11/00

Matrix Type: CTL Sample #: S 8529 S 8530 S 8531

Field ID:

220-SS-PD 220-SS-PD 1 (2-4') 2 (2-4')

200-SS-PD 3 (2-4')

Results of Analysis

Results of Analysis			1		· · · · · · · · · · · · · · · · · · ·
Parameters	MDL				
Chloromethane	25	BDL	BDL	BDL	
Vinylchloride	25	BDL	BDL	BOL	
Bromomethane	25	BDL	BDL	BDL	
Chloroethane	25	BDL	BDL	BDL	
Trichlorofluoromethane	25	BDL	BDL	BDL	
1,1-Dichloroethylene	25	BDL	BDL	BDL	
Methylenechloride	25	BDL	BDL	BDL	
trans-1,2-Dichloroethylene	25	BDL	BDL	BDL	
1,1-Dichloroethane	25	BDL	BDL	BDL	
cis-1,2-Dichloroethylene	25	BDL	BDL	BDL	
Chloroform	25	BOL	BDL	BDL	
1,1,1-Trichloroethane	25	BDL	BDL	BDL	
Carbontetrachloride	25	BDL	BDL	BDL	
1,2-Dichloroethane	25	BDL	BDL	BDL	
Trichloroethylene	25	BDL	BDL	BDL	
1,2-Dichloropropane	25	BDL	BDL	BDL	
Bromodichloromethane	25	BDL.	BDL	BDL	
2-Chlorethylvinylether	25	BDL	BDL	BDL	
Dibromomethane	25	BDL	BDL	BDL	
cis-1,3-Dichloropropylene	25	BDL	BDL	BDL	
trans-1,3Dichloropropylene	25	BDL	BDL	BDL	
1,1,2-Trichloroethane	25	BDL	BDL	BDL	
Tetrachloroethylene	25	BDL	BDL	BDL	
Dibromochloromethane	25	· BDL	8DL	BDL	
1-Chlorohexane	25	BDL	BDL	8DL	
Chlorobenzene	25	BDL	BDL	BDL	
bis(2-Chloroethoxy)methane	100	BDL	BDL	BDL	
bis(2Chloroisopropyl)ether	100	BDL	BDL	BDL	
Chloromethyl methyl ether	100	BDL	BDL	BDL	
Bromoform	25	BDL	BDL	BDL	
1,1,2,2-Tetrachloroethane	25	BDL	BDL	BDL	
Trichloropropane	25	BDL	8DL	BDL.	
Bromobenzene	25	BDL	BDL	BDL	
Chlorotoluene	25	BDL	BDL	BDL	
1,3-Dichlorobenzene	25	BDL	BDL	BDL	
1,4-Dichlorobenzene	25	BDL	BDL	BDL	
Benzyl Chloride	100	BDL	8DL	BDL	
1,2-Dichlorobenzene	25	BDL	BDL	BDL	
1,4-Dichlorobutane-SR		108	111	89	
4-Bromochlorobenzene-SR		99	107	85	

SR= Surrogate Recovery -percent

MDL= Minimum Detectable Level BDL= Below Detection Level Units= ppb Matrix Type: W = Water/Aqueous S= Soil/Solid O= Oil/Hydrocarbon